

# Bluetooth User Experience in Windows

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# High Level Goals

- Easy configuration
  - Configure a new device once
  - Wizard to guide user through the process
- Ease of use
  - After initial configuration, it “just works”
  - Known devices can interoperate without user intervention
  - Don’t overwhelm user with unnecessary information
- Enable advanced functionality
  - User configurable security
  - Local radio properties

# User Scenarios Enabled

- Cell phone as a modem
  - Dial-up networking profile
- Digital camera to PC
  - File transfer profile
- Public Internet access points
  - LAN Access Profile
- Business card exchange
  - Object push profile
- Synchronize PPC with desktop

# Configuration Issues

- Security modes
  - Open device – no security
  - Secure connections only
  - Service level security
- Binding devices
  - PIN entry on multiple devices
  - Support for devices without a UI
- Enable hidden computing
- How to hide this complexity from the average user?

# Device States

- Unknown device in range
- Known, unbound device in range
- Bound device in range
- Device out of range

# Unknown Device In Range

- Device discovery
  - Periodic polling can be enabled
  - User can force a discovery
- Unobtrusive notification will appear when a device is discovered



# Managing Devices

- Approve device
  - Establish trust relationship
  - Requires entering data on each device
  - One-time procedure
- Establish temporary connection
  - One-time service usage
  - May or may not be secure connection
- Instruct Windows to ignore this device in the future
  - Stop telling me about cell phone in the office next to mine

# Approval Wizard

- Guides the user through the binding process
- Welcome page
- Brief explanation of what the user needs to do
- Specifically calls out that devices must be explicitly enabled



# Approval Wizard, Welcome

Approve New Bluetooth Devices

Welcome to the Bluetooth device approval wizard.

You must explicitly choose to enable newly discovered devices; by default, all devices are not approved.

< Back

Next >

Cancel

# Approval Wizard, Discovered Devices

Approve new Bluetooth devices

Found Devices:

☒ Bluetooth enabled PDA

Approved Devices:

☐ Bluetooth enabled cell phone

Approve ->

< - Ignore

Check all devices that you do not want to be asked about again.

You may be asked to enter a PIN for each device that you approve.

< Back

Next >

Cancel

# Approval Wizard, Key Entry

Approve New Bluetooth Devices

Enter the PIN for each approved Bluetooth device:

Bluetooth enabled cellphone:

\*\*\*\*

Bluetooth enabled PDA

\*\*\*\*\*

< Back

Next >

Cancel

# Approval Wizard, Remote Device Instructions

Approve New Bluetooth Devices

You have finished approving the newly discovered Bluetooth devices.

You must now enter the PIN for this computer on each of the discovered devices.

< Back

Finish

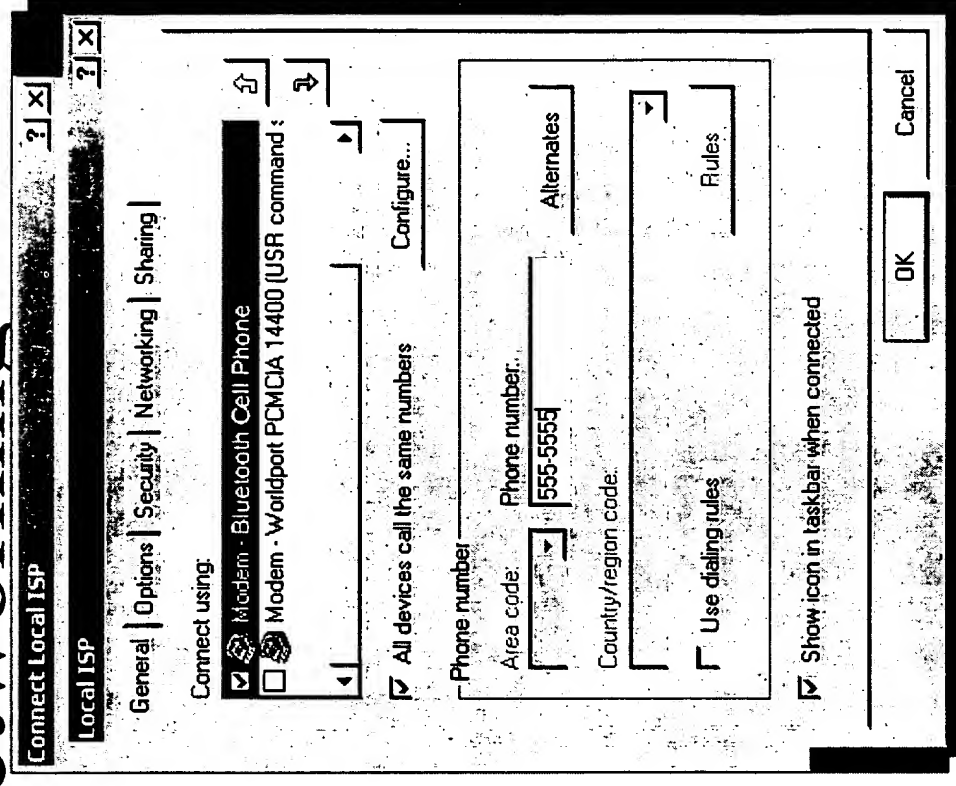
Cancel

# Approved Device In Range

- User can immediately use services exported by the device
  - PIN not required
- Supports “Hidden Computing” model
  - PPC automatically syncs with desktop when in range

# Dialup Networking

- Use the Network Connection Wizard to create a connected
- Select the Bluetooth Device that appears as a modem
- If a connected already exist, simply change to the Bluetooth modem device
- Connect to network just like any other modem

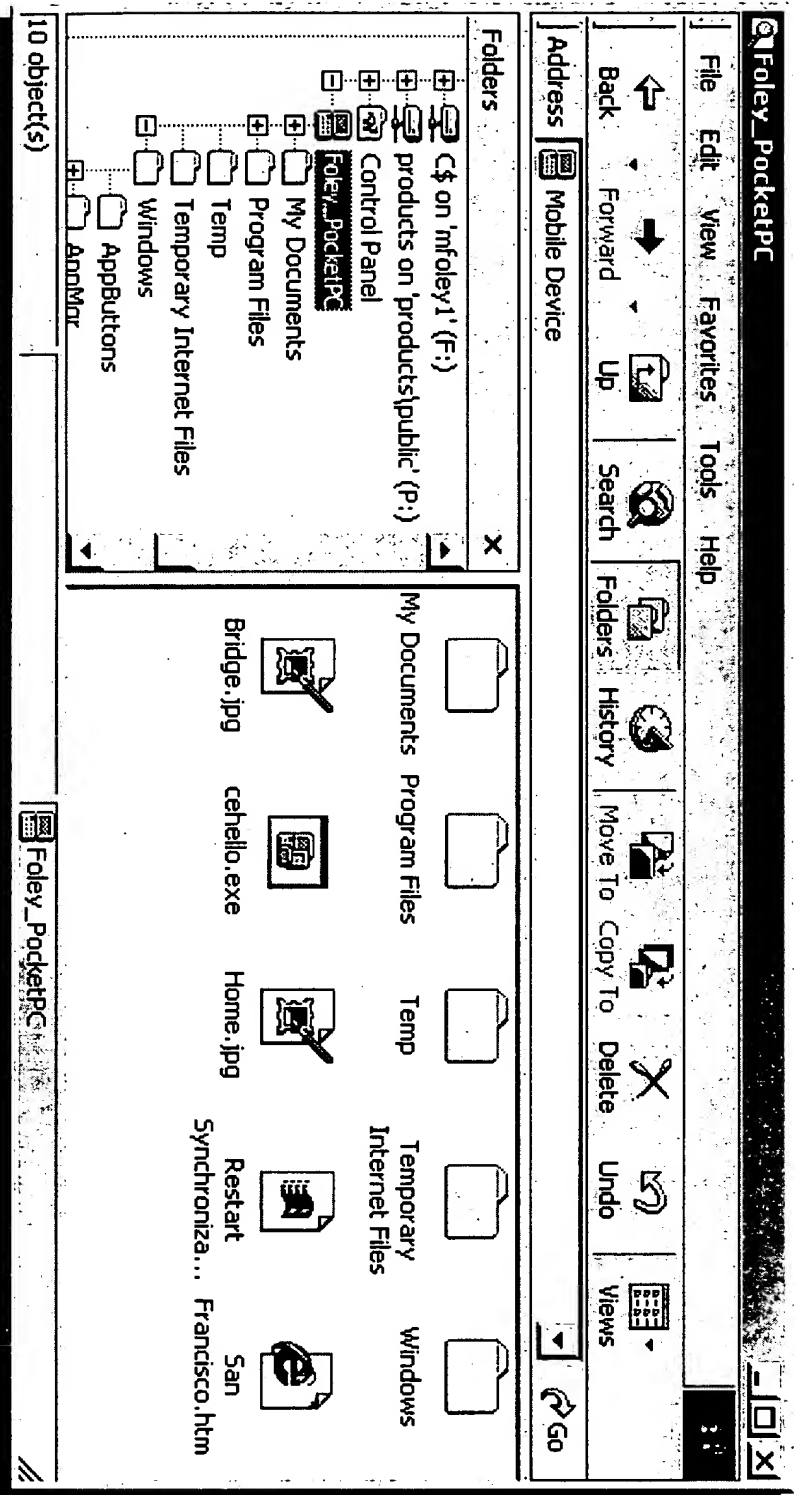


# LAN Access Point

- LAN Access Point looks like a modem connection
- Usage is the same as DUN, except the connectoid connects to the LAN access point rather than the phone/modem

# File Transfer

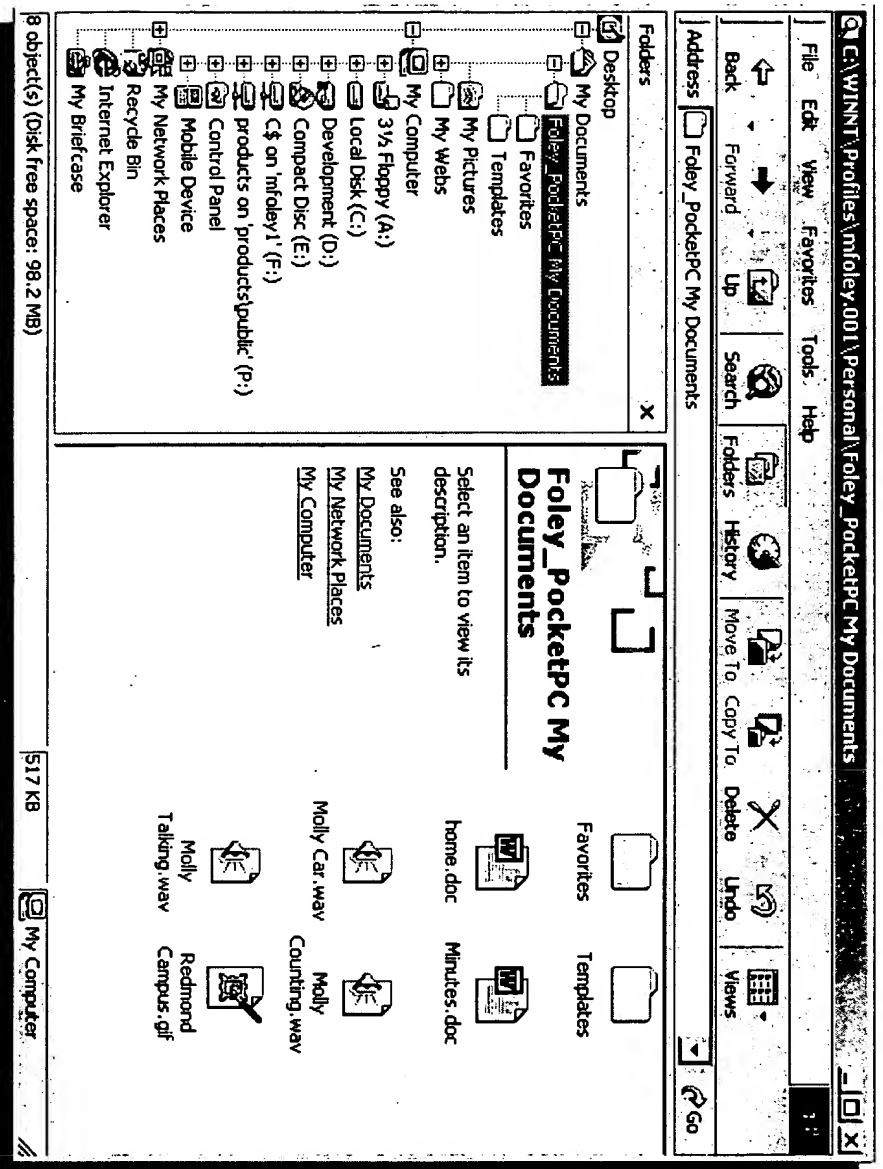
- Browser remote device





# Synchronization

- File as well as contacts, appointments, task, etc.



# Advanced Functionality

- Listing all devices in range
- Managing local services
- Managing local radio parameters
- Removing devices
- Forced discovery

# Remote Device Browsing

- User can view all approved devices; both in and out of range
- Can remove device from approved status
- User can only view unapproved devices currently in range
  - History of all devices seen isn't stored
- Explore Services on remote devices
- Property page for each device will display URLs associated with service discovery record for the device

# Managing Local Services

- View currently exported services
- Alter security settings
  - Must be bound device by default
  - Enable access to unbound devices
  - Disable service to all devices

# Managing Local Radio Properties

- Set power management policies
  - AC Powered versus Battery Powered
  - Periodic polling frequency
  - Machine is on
  - Machine is in standby
  - Machine is in hibernate
  - Which COD wake machine
- Set filtering rules
  - Discover particular CODs
  - Discover particular radios
- Some properties are read-only for non administrators

# Summary

- Designed for ease of use
  - Configure devices once
  - More information and control available when required
- Integrated Windows User Interface
- Many usage models supported out of the box
  - Dial-up networking
  - Synchronization
  - File Transfer
  - LAN Access

# Call To Action

- Beta test our software
  - Learn first hand what is intuitive, and what is not
  - Which features should be more readily available
  - Which features are rarely used
- Provide us feedback
- Provide us hardware
  - Allows us to test the user experience with a wide range of scenarios

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- 9  **Approval Wizard, Welcome**
- 10  **Approval Wizard, Discovered Devices**
- 11  **Approval Wizard, Key Entry**
- 12  **Approval Wizard, Remote Device Instructions**
- 13  **Approved Device In Range**
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- 14  **Dialup Networking**
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- 16  **File Transfer**
  - Browser remote device
  - Drag and drop files
- 17  **Synchronization**
  - File as well as contacts, appointments, task, etc.
- 18  **Advanced Functionality**
  - Listing all devices in range

- Managing local services
  - Managing local radio parameters
  - Removing devices
  - Forced discovery
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